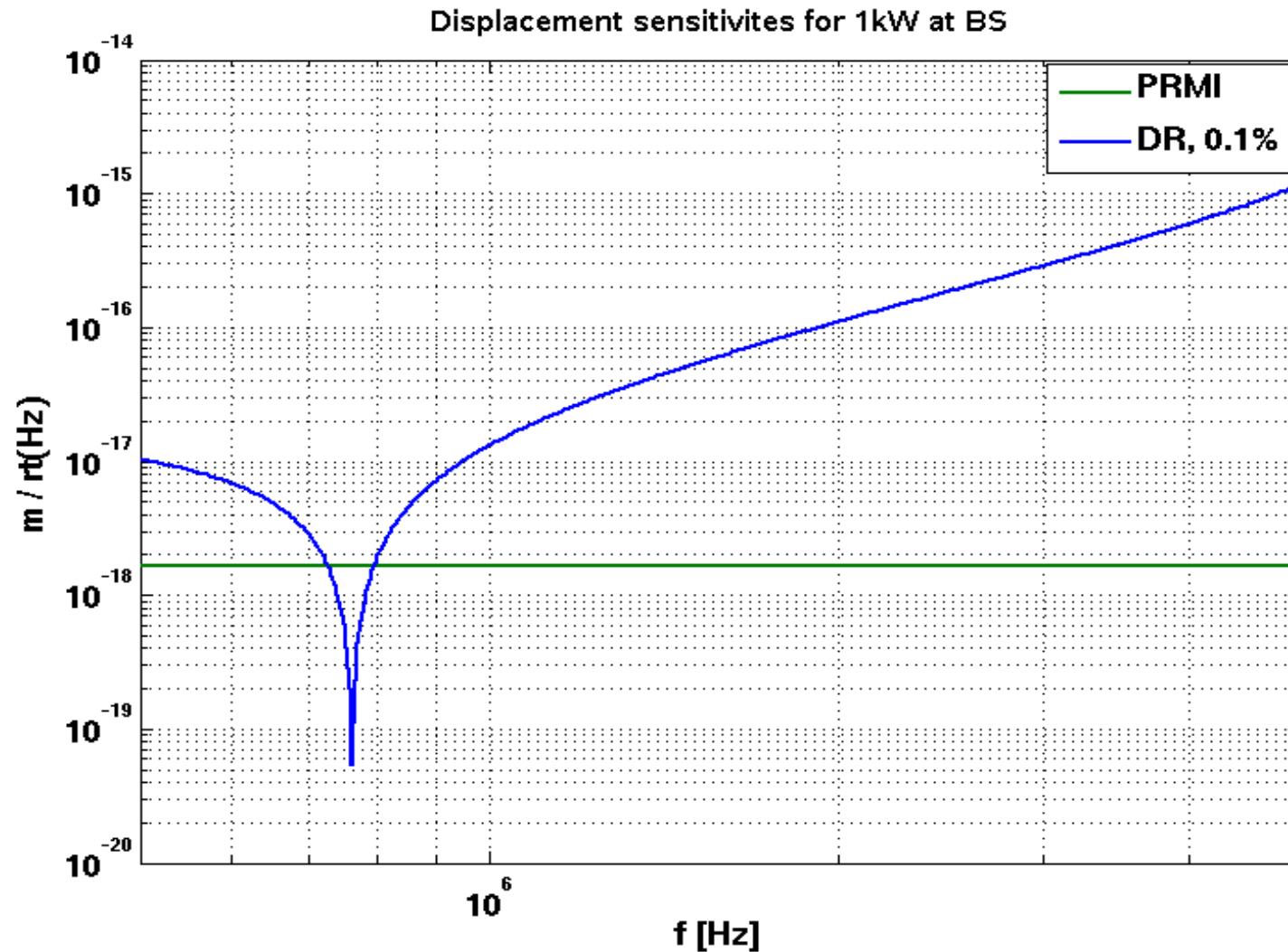


$$t_{\text{obs}} > \left(\frac{h}{P_{\text{BS}}} \right)^2 \left(\frac{\lambda_{\text{opt}}}{\lambda_{\text{Pl}}} \right)^2 \left(\frac{c^3}{32\pi^4 L^3} \right)$$

Two correlated Michelson Interferometers,
testing $2.3 \times 10^{-22}/\sqrt{\text{Hz}}$ strain noise

Arm length	Configuration	SNR=1	SNR=2	SNR=3
2m	PRMI, 1kW	3 weeks	3 monthes	$\sim \frac{1}{2}$ year
10m	PRMI, 1kW	4 h	16 h	\sim 1 d
40m	PRMI, 1kW	4 min	16 min	$\sim \frac{1}{2}$ h

PRMI / Dual Recycling



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Arm length	Configuration	SNR=1	SNR=2	SNR=3
2m	PRMI, 1kW	3 weeks	3 monthes	~ ½ year
10m	PRMI, 1kW	4 h	16 h	~1 d
40m	PRMI, 1kW	4 min	16 min	~ ½ h
10m	DR 0.1%, 1kW	100 s	6 min	15 min
10m	DR 0.1%, 10kW	1 s	4 s	9 s

~1 day to test $2.3 \times 10^{-23}/\sqrt{\text{Hz}}$ with SNR=3

Dual recycling

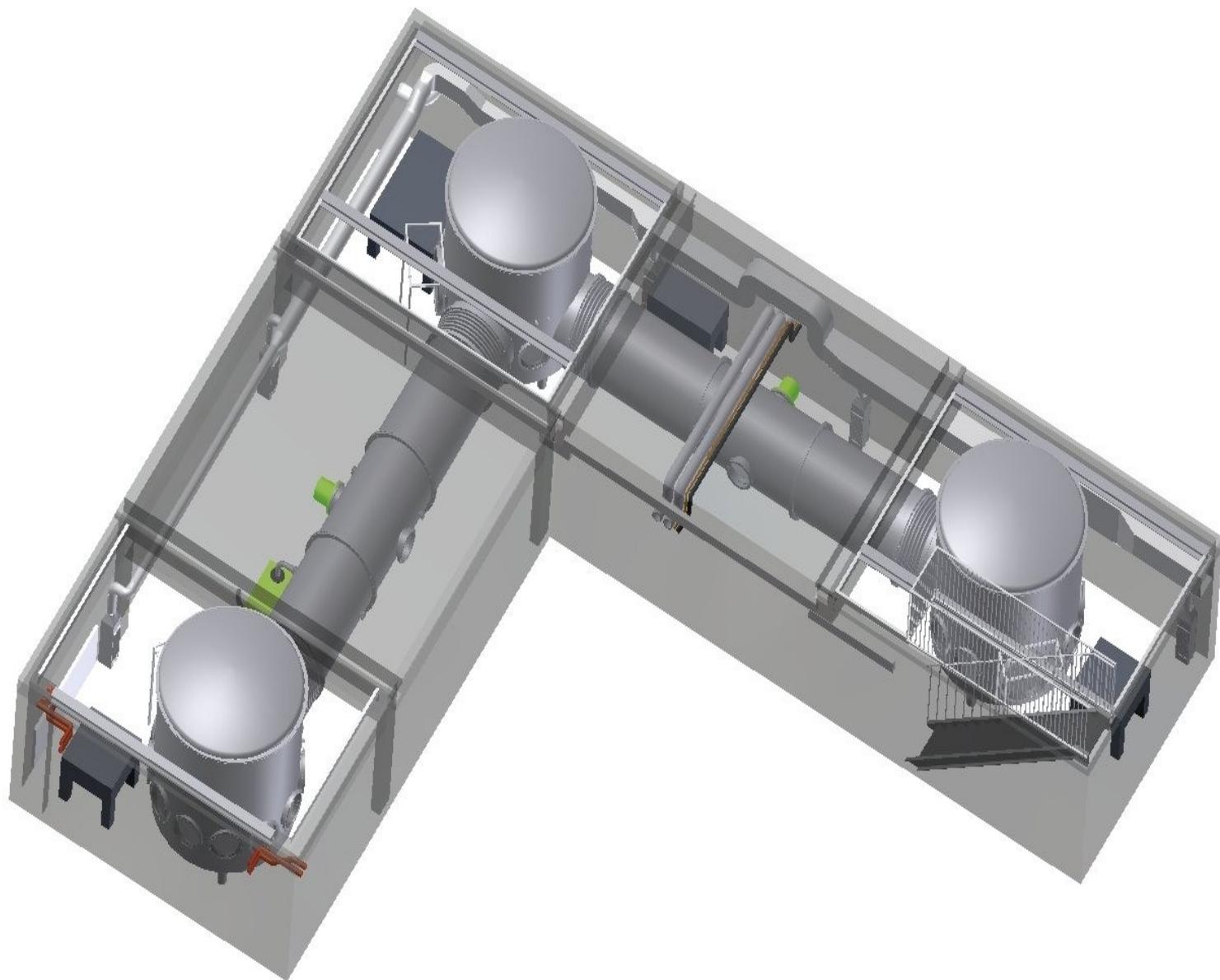
Advantages:

- Can select frequency
- Can heterodyne each signal individually and reduce data a lot
- Mode healing

Disadvantages:

- Complexity

The AEI prototype



A Table-Top to start with

- One PRMI IFO: look for noise in MHz regime
- Two PRMI IFOs: look for correlations
- Test correlation electronics